Sub a17

~~What is claimed is:~~

added 92

~~1. A method of controlling suspension performance in vehicles having hydropneumatic suspension devices between suspended **[sprung]** and unsuspended **[unsprung]** masses and extremely variable axle load ratios, in particular on vehicles in which the front axle is subjected to a low, medium or high static load range, depending on the application of the vehicle, and the suspension device has double-action hydraulic cylinders between the suspended and unsuspended masses, their pressure chambers being connectable to a pump over pressure lines, a pressure-regulating valve being installed in the pressure line to the annular spaces, the pressure-regulating valve constantly correcting the pressure in the annular spaces to the pressure in the piston spaces in a predefined ratio, wherein the pressure ($P_R$) in the annular spaces (7, 8) of the spring cylinders (1, 2) is increased in the low load range (n) on the front axle.~~

~~2. The method according to Claim 1, wherein the pressure ($P_R$) in the annular spaces (7, 8) is also increased in the high load range (h) of the front axle.~~

~~3. The method according to Claim 1, wherein the annular space pressure ($P_R$) is switched in two pressure stages having a difference of up to 50 bar as a function of the pressure ($P_Z$) in the piston spaces (3, 4).~~

~~4. A device for implementing the method according to one of Claims 1 through 3, a hydropneumatic suspension device for vehicles having extremely variable load conditions, in which spring cylinders (1, 2) which have load-carrying piston spaces (3, 4) and pressure-loaded annular spaces (7, 8) surrounding the piston rod with a seal are situated between the suspended and unsuspended masses, the piston spaces (3, 4) being connected ~~to a first~~ hydraulic accumulator (15) and the~~

annular spaces (7, 8) being connected to a second hydraulic accumulator (12), and a pressure-regulating valve (20) being provided, which is inserted into the pressure line (19) to the annular spaces (7, 8),
wherein the pressure-regulating valve (20) is controlled by a pilot valve (56) which is actuated by the inlet pressure ($P_z$) to the piston spaces (3, 4) and which switches the pressure-regulating valve (20) to a higher regulating stage when the pressure drops below a predetermined inlet pressure ($P_z$) in the inlet line (16) to the piston spaces (3, 4).

5. The device according to Claim 4,
wherein the pilot valve (56), designed as a valve having a double reversal, switches the pressure-regulating valve (20) from the inlet pressure ($P_z$) to the higher regulating stage at a low pressure level and at a high pressure level.

6. The device according to Claim 4 or 5,
wherein the pilot valve (56) is a 3/2-way solenoid valve which is switched by the pressure sensor in the inlet pressure ($P_z$).

7. The device according to one of Claims 4 through 6,
wherein the control line (42) for the regulating spring (41) of the pressure-regulating valve (20) is connected to the inlet line (63) leading to the annular spaces (7, 8) between the non-return valve (21) and the annular spaces (7, 8).

8. The device according to one of Claims 4 through 7,
wherein the control line (42) is provided with a deblockable non-return valve (50).

9. The device according to one of Claims 4 through 8,
wherein a throttle (18) is inserted between the connection (52) of the control line (42) to the inlet line (60) and the connecting line (11) of the annular spaces (7, 8).

10. The device according to one of Claims 4 through 9,

wherein the deblocking control line (51) of the non-return valve (50) is connected to the control line (24) of the non-return valves (17, 21) of the inlet lines (16, 19).

Key to figures

Figures 1, 2, 3:

Achsfederrate C = axle spring constant C

Zylinderdruck $P_z$ = cylinder pressure $P_z$

Achslast A = axle load A